Inequities in immigrants' access to health care services:

Disentangling potential barriers

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Abstract

This study aims to empirically assess whether immigrants suffer from unequal access to health care services, that add to prevailing socioeconomic barriers to care. Using a uniquely rich Italian health survey, we estimate the correlation between immigrant status and the probability of accessing health services, conditional on a rich set of individual and territorial characteristics. Results show that foreigners are more likely to contact emergency services and less likely to visit specialist doctors and use preventive care. Similar results hold for second-generation immigrants. We discuss the sources of observed inequities and suggest tentative policy implications to promote equal access.

Keywords: Health care utilization; Inequities; Immigrants; Italy

JEL classification: F22; I1

1. Introduction

This study empirically assesses the presence of differences between natives' and immigrants' access to health services that cannot be ascribed to the distinct characteristics of these groups. In doing so, it contributes to the understanding of inequities in health care utilization related to immigration.

Immigrants' access to health care may differ from that of nonimmigrants for several, interrelated aspects, such as the distribution of needs for care, demographic, socioeconomic, territorial and cultural characteristics, and their interplay with relevant institutional elements. However, only a subset of the observed inequalities in access is associated with inequities and calls for policy action. Inequities exist if there are systematic variations in access that are unrelated to health needs (Aday and Andersen, 1981; Nørredam and Krasnik, 2011), and if these differences are beyond the individual's control (Allin et al., 2010; Le Grand, 1991). The issue is theoretically subtle and empirically challenging.

The first challenge for the empirical identification of inequities arises from the fact that demographic, socioeconomic, territorial, and cultural traits shape both access to health care for given health needs and the individual's health status. A large literature emphasizes the existence of health inequalities and inequities linked to socioeconomic conditions (e.g. CSDH, 2008), immigrant status (e.g., Cunningham et al., 2008; McDonald and Kennedy, 2004), and their interplay (e.g., Dunn and Dyck, 2000; Malmusi et al., 2010). As a consequence, it is problematic to empirically appraise the first element of the definition of inequities (i.e. the existence of systematic differences in access to health care services that are not due to differences in health needs), if the available measures of health do not perfectly capture individuals' needs for health care. From a policy perspective, it also follows that ensuring equitable access to health care is only one step toward removing inequities between migrants and non-migrants. At the same time, it must be acknowledged that, after controlling for health status, immigrants still may face barriers to access that eventually create additional health disparities.

A second challenge in the definition of inequities is that it requires to identify the subset of needs-adjusted inequalities in access which are independent from the individuals' informed choices and preferences. In fact, most individuals' characteristics such as education, income, type of occupation, geographical distance from the services, and health-related behaviors are the complex outcomes of

individuals' choices of lifestyles, restricted by socioeconomic and cultural constraints. Therefore, the identification of inequities (in health, in general, and health care, in particular) requires to examine the causes of observed differences in the context of each specific society (Whitehead, 1992) or its elements, and it calls for moral judgments (Asada, 2005).

Ensuring equitable access to health care is a largely advocated tool to reduce health inequalities worldwide (CSDH, 2008). In the EU Member States, "equity and solidarity are common values and principles underpinning the health systems" (European Parliament resolution n. 2010/2089 on "Reducing health inequalities in the EU"). Which are the most appropriate policies to attain this goal? It has been observed that most developed countries have endorsed equity goals in terms of removing exclusionary outcomes triggered by socioeconomic status (Allin et al., 2010). In fact, financial barriers to access can be particularly severe for migrants, who are frequently overrepresented among people living in poverty and are at high risk of social exclusion (e.g. European Commission, 2008; Dustmann and Frattini, 2013). The identification and removal of socioeconomic barriers to access is certainly a primary policy tool in every country. Still, it should not obscure the fact that migrants may face additional barriers to access (Devillanova, 2012a), which could play a major role in explaining exclusionary outcomes.

In our analysis, we aim to disentangle the different access barriers linked to immigrant status from any association with other individual characteristics—most notably, socioeconomic conditions. The distinction between barriers due to immigrant status *per* se and those due to other unfavorable personal characteristics is crucial both from a conceptual and from a policy point of view. Theoretically, the dichotomy between inequalities and inequities implies that needs-adjusted inequalities linked to individuals' demographic characteristics such as age, sex and immigrant status are definitely outside the personal influence and can unambiguously be associated with inequities. Furthermore, the set of possible mechanisms of exclusion shrinks to very peculiar factors. Examples are: a lack of information about service availability, application procedures, or other relevant institutional details; language barriers; administrative and bureaucratic difficulties; and discrimination. From a policy perspective, it follows that if substantial variations in access persist after adjusting for

other confounding factors, then addressing observable differences between immigrants and natives (e.g., financial barriers to access, economic integration of immigrants into the host country) might not suffice to guarantee equity. Instead, policies to promote equitable access should explicitly address the specific exclusionary mechanisms referred above. This justifies, in turn, forms of affirmative action by the State in favor of the immigrant population. Examples of appropriate policies include: spreading information among ethnic and linguistic minorities; simplifying administrative and bureaucratic procedures; providing cultural mediators in health centers; and establishing training programs for health care professionals. It is worth noting that this type of policies has relatively low costs (Huber et al., 2008) and, following the definition of inequity, it does not produce undesirable behavioral responses. They therefore would likely pass two of the tests (cost-effectiveness and minimum distortions on agents' economic behavior) that most economists require to strategies addressing health inequalities (Epstein et al. 2009).

This study estimates the correlation between the probability of accessing various health services (general practitioners, specialist doctors, hospitals, emergency departments and, in some specifications, blood cholesterol tests) and immigrant status,[1] controlling for a large set of possible confounding factors.[2] The analysis is based on the Italian National Health Survey (INHS), a uniquely large survey that contains information on health conditions and health care service utilization, as well as rich socioeconomic and demographic data. Apart from the high quality of the data, other features make Italy an interesting case to look at. First, migrants in Italy do not face any formal eligibility restriction, nor is access to the Italian health system conditional on the individual's ability to pay. As a consequence, observed differences in access can hardly be attributed to intended institutional barriers, helping the identification of the underlying mechanisms of exclusion. Second, Italian immigration flows are characterized by an extremely large number of countries of origin, limiting the concern that immigrants' health care behaviors are driven by country specific cultural effects. Finally, the Italian "*Ius sanguinis*" rule for naturalization (see Section 3) allows identifying second-generation

[1] Throughout the paper, we define immigrants as "foreign nationals", see section 3 for details.
[2] See Hernández Quevedo and Jiménez Rubio (2009), for a similar empirical strategy applied to the Spanish experience.

immigrants (the Italian-born offspring of immigrant parents). The analysis of inequities in access among second-generation immigrants is itself topical for policy making, to promote social cohesion in the long-run: In 2010, this group of people accounted for about two-thirds of foreign children and 13.9% of total births in Italy (Istat, 2012b). Furthermore, from the analytical perspective looking at second-generation immigrants can serve as a check that the results are not driven by any unobservable immigrants' health effect.[3] In fact, while the self-selection of immigrants according to their health conditions might be an issue if health needs are not perfectly captured by the available controls, this concern does not apply to second generation immigrants. Therefore, finding similar patterns in access between first and second generation immigrants would reinforce the conclusion of the study.

Our results show evidence of unequal access to health care services: Immigrants are more likely to contact emergency services and less likely to visit specialist doctors and use preventive care than natives. Second-generation immigrants, too, are characterized by a lower probability of visiting specialist doctors and higher hospitalization rates. It should be stressed that, despite the wealth of control variables included in the analysis, we cannot rule out the existence of some unobserved factor correlated with immigration that may affect our results. Care should therefore be exercised in interpreting the results of our study as evidence of causal links. With this caveat in mind, in the concluding section we discuss the possible mechanisms behind the observed inequities in access and argue that information plays a major role.

The paper proceeds as follows. In Section 2, we briefly review some of the literature related to our study. In Section 3 we briefly present the Italian context, the data, and the methodology. Section 4 illustrates the results, and Section 5 discusses the main findings and concludes.

[3] Several studies, have suggested that recent immigrants are generally healthier than native-born populations (see e.g. Abraído-Lanza et al. 1999; Newbold, 2005). This finding, which is common to several destination countries is often referred to as the "healthy immigrant" effect, and is often attributed, among other things, to favorable self-selection of immigrant on health status (Jasso et al. (2004), Palloni and Morenoff (2001) and Riosmena et al., 2013).; The literature documents also a deterioration of immigrant health status with time spent in the host country (Antecol and Bedard, 2006; Giuntella and Stella, 2016).

2. Literature review

A substantial literature has addressed the unequal access of immigrants and, more generally, of ethnic and linguistic minorities to health care. While an exhaustive review is beyond the scope of this article, we provide here a short appraisal of some of the contributions that are most relevant for our study. Research has mainly focused on long-standing host countries, particularly the United States and Canada, and documented how differences in access between immigrants and natives persist over time (e.g., Akresh, 2009; Asanin and Wilson, 2008; Currie and Hotz, 2004; Gaskin et al., 2006; Hargraves and Hadley, 2003; Leclere et al., 1994; Pylypchuk and Hudson, 2010; Pylypchuk and Sarpong, 2012; Schwartz and Artiga, 2007; Wang et al., 2008; Weinik et al., 2005; The Kaiser Commission on Medicaid and the Uninsured, 2008) and are shaped by the institutional context (e.g., insurance coverage, Siddiqi et al., 2009) and the characteristics of migration flows (e.g., shorter stays and limited language proficiency reduce access; see Lebrun, 2012). For Europe, though, the available evidence is sparser. In most EU countries information on the health of migrants, including health determinants and their use of health services, is not available, which limits the possibilities to monitor and improve migrant health (Rechel et al., 2012). In general, existing studies (see Nørredam and Krasnik, 2011, for a recent review of the literature) show that migrants face barriers to access (Gerdtham, 1997; Gravelle et al., 2003; Morris et al., 2005; Smaje and Le Grand, 1997), experience lower access to specialist and preventive care and higher usage of emergency departments (Cots et al., 2007; Davies et al., 2010; Ingleby et al., 2005; Sanz et al., 2000); there is also some evidence of greater use of general practitioners, especially among migrant women. Several recent studies focused on Spain document that non-Spaniards are more likely to be treated in hospitals and to contact emergency medical services but less likely to visit specialist doctors than Spaniards are (Antón and Muñoz de Bustillo 2010; Hernández Quevedo and Jiménez Rubio, 2009, 2011). Further evidence shows that experience with discrimination is a decisive factors in access to healthcare services (Agudelo-Suárez et al., 2009). These findings are particularly relevant for our study, because in both Italy and Spain, sustained immigration is a relatively new phenomenon.

Related to Italy, extant literature (Giannoni and Ismail, 2010) has documented inappropriate uses of emergency services (Bernadotti, 2003; Farchi et al., 2005; Sabbatani et al., 2006; Zaninotto, 2010), lower access to preventive healthcare and specialty medicine (Coffano and Mondo, 2004; Istat, 2008), and lower hospitalization rates, with the exception of specific diseases, such as injuries and traumatic accidents for men and reproductive events for women, which are more frequent among the immigrant population (Baglio et al., 2010; Cacciani et al., 2006; Ministero del Lavoro, della Salute e delle Politiche Sociali, 2008; Spinelli et al., 2005). There is also evidence of language barriers and a lack of knowledge about health care services (Caritas Italiana, 2004). None of these studies controls for individual socioeconomic characteristics though, mainly as a consequence of data limitations. Furthermore, being based on health care usage data (Istat 2008 is an exception), they include only those patients who have received health services, which is an unappealing feature for investigating barriers to access (Rechel et al., 2012). When individual characteristics are controlled for, immigrants are still found to have a higher probability of failing to get access to medical or dental care (Giannoni, 2010). A recent assessment based on survey data on elderly populations for 11 European countries documents that older immigrants use more health services than native-born people; however, it finds an opposite, though not statistically significant, result for Italy (Solé-Auró et al., 2011).

3. Context, data, and method

For a long time, Italy was a country of emigration. Starting in the early 1990s, though, the net migration inflow became positive and has increased over time. The share of foreigners in the total Italian population was barely 0.63% in 1991, 2.3% in 2001 (Istat, 2012b), and 7.5% in 2011 (Istat, 2012a), close to the average for the European Union as a whole (Eurostat, 2011). Although naturalization rules affect the cross-country comparison, foreign immigrants in Italy have increased dramatically in the past 20 years, attracting considerable attention in policy debates and the media. The number of countries of origin is large (194, according to Istat, 2012a), which poses some additional concerns for managing diversity in terms of languages, religions, and cultures. At the same

time, given the large heterogeneity in welfare cultures of different countries of origin, it is unlikely that any correlation between immigrant status and health care utilization is driven by country specific attitudes toward health care, which are not captured by the control variables.

The 1948 Italian Constitution states (art. 32) that "the [Italian] Republic safeguards health as a fundamental right of the *individual* and as a collective interest, and guarantees free medical care to the indigent" (italic added). Equitable access to health care is therefore a core objective of the Italian National Health Care System (*Servizio Sanitario Nazionale* [SSN]) and, by now, immigrants' access to healthcare services is a topical issue in health policies (Mladovsky, 2009 and Vázquez et al., 2011). Anyone residing in Italy is entitled to access the SSN. Documented immigrants must register with the SSN, after which they are granted equal treatment and have the same rights and duties as any Italian citizen. However, according to the last official estimate, only 68% of immigrants are registered (Melis and Valente, 2009). Access to publicly-provided health care for undocumented immigrants is limited to emergency and preventive care, treatments related to communicable disease, pregnancy and childbirth; however, our analysis is restricted to documented migrants only. Health assistance also is granted to dependent minors, regardless of their legal status. Finally, it is worth mentioning that the Italian SSN is regionally and locally managed and that the implementation of the national law thus can differ across areas (Geraci et al. 2010).

The present study uses the 2005 edition of the INHS (*Indagine Multiscopo sulle famiglie "Condizioni di salute e ricorso ai servizi sanitari"*, 2005), carried out in 2004 and 2005 by the Italian National Institute of Statistics. The first wave of INHS appeared in 1993; since then the survey has been run every five years. However, only the 2005 edition reports information on citizenship. The next edition of the INHS was not available at the time of this study. The sample consists of 50,474 households (128,040 individuals) randomly selected through a complex, stratified, multistage design within geographic strata (North, Center, South, and Islands), municipalities, and household sizes. The sample is representative of the Italian population. The survey provides detailed information about health conditions and the health care services used by individuals in the sample, as well as a rich set of socioeconomic and demographic characteristics.

Two type of drawbacks of the INHS should be pointed out. First, the main limitation of the INHS for the purpose of our study is that its sampling design only ensures that the population of foreigners and foreign-born individuals is representative at the national level, which prevents any analysis of regional heterogeneities. Second, the data have no information about health insurance coverage, language proficiency and length of stay in Italy, which could all play a role in shaping access to health care services (see e.g. Lebrum, 2012; Siddiqi et al., 2009). We explain in section 5 why we are confident that the lack of these variables is not a major drawback for our analysis. Fitted logit models of the probability of accessing medical care take the general form:

$$\text{Prob}(Y_i = 1 | \text{Immigrant}; X_i = x_i), \quad (1)$$

where Y_i is a binary variable equal to 1 if individual *i* has accessed the medical service of interest and 0 otherwise, and X_i is the set of individual and territorial controls. Four access outcomes, Y_i, are the focus of this investigation: general practitioners (GPs), specialist doctors, hospitals (stayed overnight in a hospital, including hospitalization episodes linked to births), and emergency departments (EDs). For GPs and specialist doctors, the survey reports if the respondent has visited a physician in the four weeks before the interview. For access to hospitals and EDs, the reference period is three months before the interview. For the interpretation of some of the results, it is convenient to associate visits to GPs and specialist doctors with preventive care (Phlypchuk and Hudson, 2009) and timely diagnosis and treatment; on the contrary, access to hospital and EDs are more strictly linked to pure treatment (acute or chronic care). Some specifications also look at the frequency of tests for blood cholesterol, used as a direct measure of preventive care. The indicator takes a value of 1 if the respondent checks his or her blood cholesterol at least once every five years, and 0 otherwise. This item was addressed to respondents over the age of 18.

The main independent variable of interest is immigration status. As is common in large surveys, identifying immigrants relies on either the citizenship or the country of birth of the respondents in the sample. Both measures have pros and cons, that are well understood in the literature. The following analysis focuses on citizenship and its interaction with the area of birth; for expositional convenience,

the terms "foreigner" and "immigrant" are used interchangeably. The INHS differentiates between people with Italian citizenship and all the others, including stateless persons. The variable *foreigner* is an indicator equal to 1 if the respondent does not have Italian citizenship, and 0 otherwise. The "*Ius sanguinis*" rule in force in Italy mandates that children of foreign parents born in Italy are not qualified for Italian citizenship until the age of 18 years (Law 91/1992). Because of this institutional feature, we can readily identify second-generation immigrants (G2), by crossing the variable *foreigner* with information on the country of birth. The analysis distinguishes foreign individuals born in Italy (G2), in the European Union (EU-25), and outside the EU-25 (Extra-EU25). Notice, finally, that all immigrants in this sample hold a valid residence permit and are fully eligible for public health care programs.

Individual controls in X_i are grouped in five domains: Need for care, demographic, socioeconomic, territorial, and cultural characteristics. The need variables include a self-reported measure of health status (three categories: good and very good, fine, or bad and very bad); an indicator variable equal to 1 if the respondent has suffered from any chronic diseases in the 12 months prior to the interview; and an indicator variable equal to 1 if the respondent suffers from any disability. An indicator for the occurrence of an accident in the four weeks before the interview was also included, in order to control for possible differences in the need for crash care between immigrants and Italians. Demographic characteristics are the person's age (0–9, 10–17, 18–34, 35–44, 45–65, 65–74, and older than 75 years), gender, the interaction between age and gender. The socioeconomic variables include: marital status (= 1 if married, = 0 otherwise), type of household (single, couples, couples with children, single fathers, and single mothers), education (university, upper secondary education, lower secondary education, or less), and employment condition (= 1 if employed, = 0 otherwise; missing values for people younger than 15 years have been coded in an additional category). The survey has no direct information on actual income or wealth. Two variables control for the household's economic conditions: a self-reported measure of the family's economic resources in the last 12 months (= 1 if economic means are very good or good, = 0 otherwise) and an indicator equal to 1 if the house is

reported to be too small or in bad condition, and 0 otherwise. Cultural variables in X_i are intended to control for lifestyle habits, which might have an impact on the individuals' health status and/or demand for health services: smoking habits (= 1 if the person is a smoker, = 0 otherwise), physical activity (= 1 if the person engages in any physical activity, = 0 otherwise), and being on a diet. X_i also includes a variable that equals 1 if the respondent trusts alternative medicine, such as acupuncture, homeopathy, phytotherapy, massage therapy, and other non-conventional therapies (missing values were coded in an additional category).

Finally, the territorial variables refer to the macro area of residence (North-West, North-East, Center, South, Islands) and the size of the municipality (up to 10,000 inhabitants, more than 10,000 inhabitants, or metropolitan areas). These variables control for territorial heterogeneity in the provision of healthcare services (Masseria and Giannoni, 2010) and, possibly, for cultural traits that might affect access. The data do not contain more precise geographical information.

4. Results

This section begins with descriptive statistics, followed by the results of the multivariate regression analysis. All statistics are computed using the sample weights provided by the INHS.

[Table 1 about here]

Table 1 offers information on foreigners and foreign-born individuals in the sample. People without Italian citizenship account for 4.27% of the sample. Remarkably, 14.53% of them (0.62% of the whole sample) were born in Italy and thus constitute the G2 group; 79.06% of non-Italian citizens were born in a country outside EU-25, and the remaining 6.41% were born in EU-25. In terms of birthplace, 5.49% of the sample was foreign-born, in the EU-25 (0.98%) or outside EU-25 (4.51%). A large share of foreign-born individuals (33.51%) has Italian citizenship. The data do not indicate whether they are Italians born abroad or naturalized immigrants. The exclusion from the category of foreigners of those migrants who have acquired Italian nationality should cause, if anything, an attenuation of the differences in access between migrants and non-migrants.

The top part of Table 2 provides a first assessment of the percentage of individuals in the two groups who access each of the five health outcomes. Immigrants achieve lower access to all considered health services except EDs. In particular, approximately 16.5% of the Italian population has visited specialist doctors or GPs, versus 10.2% of the immigrant population. The same pattern is observed for hospital visits, whereas the percentage of patients who have accessed EDs is higher among immigrants (9.1%) than Italians (7.1%). These results confirm the main findings of prior epidemiological literature for Italy, reviewed in Section 2. This information is certainly important for policy purposes, but the large differences between the two groups do not allow to draw any conclusion on the sources of the observed inequalities in access and whether they are associated with inequities.

[Table 2 about here]

The bottom rows of Table 2 reports the means and standard errors of the variables included in X. Immigrants are mostly concentrated in the north of Italy and in metropolitan areas. The most remarkable differences between migrants and natives is the age structure: 60% of foreign persons are less than 35 years old, versus only 38% of Italians. The gender composition is balanced in each group. Immigrants are slightly less educated, which is mainly driven by the higher percentage of children with pre-primary or primary education in that group. The age structure also explains the lower percentage among immigrants of non-employed individuals. As expected, the percentage of households with very good or good economic resources is significantly higher among natives than among immigrants, as is also the case for housing conditions. The percentages of Italians who practice sports or are on diets are higher than those of immigrants. The results related to smoking habits do not reveal significant differences though. Immigrants are characterized by better self-reported health conditions and a lower incidence of disabilities or chronic diseases, which is coherent with their age structure and the "healthy migrant effect" hypothesis (see discussion in section 1).

The remainder of this section presents the results of the logit regressions (1). Robust standard errors are clustered at the household level. For brevity, tables only report the odd ratios of the immigrant status. In general, estimates of the other individual and area controls (available on request) appear stable across specifications, with the expected signs. Although they are of independent interest, the

present analysis cannot establish causality links and, from the discussion above, the interpretation of correlations in terms of inequities in access is dubious.

[Table 3 about here]

Table 3 contains the odds ratio for the probability of accessing medical care by non-Italian citizens relative to Italian citizens. Columns differ from each other in the number of controls included: All specifications include territorial variables and a constant; columns 2-5 progressively add blocks of further controls: Demographic characteristics (column 2), socioeconomic characteristics (column 3), lifestyle habits (column 4), and need for health care (column 5).

Consider first the results on GPs visits. Column 1 basically replicates the access rates of Table 1 and it indicates that non-citizens have a lower probability of primary level care (odds ratio = 0.564 [0.491-0.649]; the main text reports the 95% confidence interval in brackets). Column 2 shows that the lower access rate by immigrants is largely explained by the different demographic characteristics in the two groups (the odds ratio increases by 56%). The individual's socioeconomic status and lifestyle habits do not have large effect on the probability of accessing GPs (columns 3 and 4). Remarkably, access rates to GPs for immigrants and Italians are statistically identical once health needs are controlled for (column 5). The remaining rows of table 3 look at specialist doctors, hospitals and EDs, respectively, and have the same structure as the first row.

The following facts are worth emphasizing. First, even after controlling for all possible confounding factors (column 5), immigrants have a lower probability of visiting specialist doctors (odds ratio = 0.658 [0.571-0.758]) and a higher probability of accessing EDs (odds ratio = 1.369 [1.153-1.626]). There are no statistically significant differences between Italians and immigrants in their probability of visiting GPs or staying overnight in a hospital. Second, health needs have a large impact on the estimates, producing an increase of 16-23% in the odds ratios; demographic characteristics are important too in explaining access to GPs and hospitals. However, adding socioeconomic characteristics has little impact on the odds ratios for GPs and specialist visits and it cushions the difference between migrants and Italians in access rates to hospitals and EDs. Our interpretation of these findings rests on the proposed intuition that the health services provided by GPs

and specialist doctors include a mix of prevention and timely diagnosis and treatment. Given that the Italian health care system does not discriminate on the basis of the individuals' ability to pay, socioeconomic barriers turn out to play a minor role in explaining access to this type of care. On the contrary, the need for acute and chronic treatments, including crash care due to injuries and traumatic accidents, that requires access to hospitals or EDs, is more strongly correlated to the prevailing socioeconomic conditions.

Table 4 crosses the information on citizenship with that on the country of birth and, for expositional convenience, it focuses on the most saturated version of model (1), which corresponds to that of Column 5 of Table 3. The first row of Table 4, refers to second generation immigrants (foreigners born in Italy, denoted with G2), without distinguishing between parental countries of origin. Since the G2 group consists of immigrants' offspring, who are not qualified for naturalization until age 18, the top part of Table 4 uses the whole sample and therefore includes children. As Table 4 reveals, second-generation immigrants differ significantly from Italians in terms of specialist visits (odds ratio = 0.601 [0.443-0.816]) and hospitalization (odds ratio = 1.647 [1.038-2.613]). Similar results (available on request) emerge from restricting the sample to individuals younger than 18 years.

[Table 4 about here]

There is no statistically significant evidence of unequal access between immigrants born in the EU-25 and Italian citizens (second row of Table 4). However, the number of observations in this cell is low. Foreigners born outside EU-25 show a lower probability of visiting a specialist doctor (odds ratio = 0.62 [0.521-0.737]) and a higher probability of accessing emergency rooms (odds ratio = 1.455 [1.22-1.736]).

Although access to health care by the G2 group is crucial for policy analysis, it must be acknowledged that the determinants of health care utilization differ between children and the adult population. To align with extant literature, the bottom part of Table 4 presents the results for adults (18 years or older). Moreover, it adds a fifth outcome: the probability of testing blood cholesterol, asked of adults only. The results for foreigners born in Italy (G2) are not reported, due to the extremely low number of observations in this cell (18 respondents). Results confirm the underutilization

(overutilization) of specialist doctors (EDs) by immigrants born outside the EU-25. There is also some evidence that foreigners born in the EU-25 have a higher probability of accessing to specialist visits.

Finally, foreigners have a lower probability of testing blood cholesterol levels, independently of their country of birth. This finding is in line with results from earlier studies, which have shown that immigrants, especially non-citizens, are less likely than natives to use preventive care, in general, and to check for cholesterol, in particular.

5. Discussion and conclusions

The analysis of Section 4 documents that, after controlling for possible confounding factors, immigrants have unequal access to health care services. In particular, foreigners from extra–EU-25 countries are more likely to contact emergency services and less likely to visit specialist doctors or to use preventive care. These findings align with results obtained for other European countries. Remarkably, similar findings emerge for second-generation immigrants, who have a lower probability of visiting specialist doctors and higher hospitalization rates. The latter result raises concerns for equity and social cohesion in the long run and is consistent with prior findings (Borjas and Sueyoshi, 1997) indicating that differences in welfare participation rates among ethnic groups are transmitted to the children in these groups.

One possible explanation of the divergent access rates to EDs is that the incidence of crash care is higher among migrants, relative to natives. An alternative interpretation of these findings is that migrants may face specific barriers to access specialist doctors, which eventually lead to late diagnosis and/or care of acute and chronic diseases. Given the set of controls for the individuals' health needs included in the analysis, the second interpretation looks more compelling. This would imply that the observed paths of access might affect the severity of health conditions when health care is accessed and/or the relative burden in terms of cost and clinical efforts for foreign residents. In fact, the reduction of inequities – i.e. ensuring immigrants with "the right services at the right time in the right place" (Rogers et al., 1999: 866) – is also justifiable on the ground of economic efficiency (e.g. lower

risks of spreading infectious diseases and lower costs due to timely medical interventions and proper uses of medical services).

While we believe that the INHS dataset used for this analysis is rich and informative, we are also aware of its limitations, In particular, as we explain in section 3the data have no information about three potentially important variables which shape access to health care (e.g., Lebrum, 2012; Siddiqi et al., 2009): health insurance coverage, language proficiency and length of stay in Italy. It should be noted, however, that supplementary private insurances, are not common in Italy. In 2005 (the year of the survey that provided the data for this study), expenditures on private insurance accounted for only 1% of total health expenditures (OECD, 2007). Additionally, it has been documented (Solé-Auró et al., 2011) that the share of older persons covered by supplementary or private health insurance in Italy is higher among immigrants than among natives, which likely implies higher health care utilization among the former group. This might help explaining the high access rates to specialist doctors among EU-25 foreign adults. It is worth stressing that the group of foreign adults from the EU-25 represents a socioeconomic elite: For example, 25% of them holds university education, versus 8.5% of Italians (8% of Extra-EU-25). In general, future research should try and address the heterogeneity in access across areas of birth. Regarding language proficiency, the survey questionnaire was in Italian, which might have caused lower response rates among people with a lower command of Italian. If, as it is likely, immigrants with poor knowledge of Italian are also more likely to face barriers in access to health services, then this sample selection would lead to an underestimate of the true barriers faced by immigrants in health care access. Finally, length of residence in Italy would definitively be an important further control. Notice, however, that immigration to Italy is a recent phenomenon and most immigrants have relatively short spells of permanence.

Our analysis cannot unambiguously identify the underlying mechanisms of unequal access. However, considering the vast set of controls in the regression specification, lack of information, linked to linguistic, administrative, and bureaucratic barriers, is likely to play a major role. Lack of knowledge about how to access health services shapes access to health care among undocumented immigrants in Italy (Devillanova, 2008). Informational barriers might reflect the complex procedures

required to access specialist medicine in the Italian SSN, relative to the direct access to GPs, hospitals, and, in particular, EDs. Additional evidence indirectly supporting the lack of information hypothesis is provided by a specific module of INSH, which asked women who had given birth in the six years prior the interview two questions about their awareness of the availability of prenatal services. The percentage of respondents who were not aware that they could undergo a prenatal diagnosis during pregnancy is much higher among immigrant women (36.89%), compared to Italian women (11.55%). The second question asked about attendance at prenatal classes; 19% of immigrant women who did not attend a prenatal class indicated that they were not informed of its existence. In contrast, the corresponding share was only 5% among Italian women. In both cases the differences between Italians and immigrants are significant at the 1% level.

Overall, these results support the hypothesis that lack of information, probably linked to administrative complexities, plays a crucial role in shaping access to health care for the immigrant population. Section 1 argues that appropriate policy tools to address this type of barriers are cost-effective and do not generate economically inefficient distortions on individual's behaviors. At the same time, differences in culture, attitudes, referral habits according to nationality, missed appointments, and discrimination are possible influences that cannot be excluded. Further research should try and disentangle these different mechanisms, to build more effective policy measures.

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Table 1: Nationality and region of birth

		Country of birth			
		Italy	EU-25	Extra-EU	Total
Nationality	Italian	93.89%	0.7%	1.14%	95.73%
	Foreigner	0.62%	0.27%	3.38%	4.27%
	Total	94,51%	0.98%	4.51%	100%

Table2: Summary statistics

		Italian		Foreigner	
	Variable	**Mean**	**Se**	**Mean**	**Se**
Access to health services (dependent variables)					
	General practitioners	0.164	(0.00121)	0.102	(0.00577)
	Specialist doctors	0.165	(0.00123)	0.102	(0.00590)
	Hospitals	0.033	(0.00058)	0.027	(0.00298)
	Emergency departments	0.071	(0.00085)	0.091	(0.00546)
	Cholesterol test (18 or older)	0.761	(0.00154)	0.503	(0.48032)
Territorial variables					
	North-West	0.259	(0.00158)	0.371	(0.0102)
	North-East	0.184	(0.00119)	0.271	(0.00813)
	South	0.249	(0.00131)	0.0864	(0.00489)
	Islands	0.118	(0.00107)	0.0325	(0.00346)
	Metropolitan area	0.272	(0.00163)	0.313	(0.00992)
	> 10,000 inhabitants	0.415	(0.00161)	0.394	(0.00963)
Demographic characteristics					
	Age 0-8	0.0911	(0.000959)	0.155	(0.00727)
	Age 10-17	0.0785	(0.000883)	0.0960	(0.00590)
	Age 18-34	0.214	(0.00137)	0.352	(0.00962)
	Age 35-44	0.159	(0.00123)	0.237	(0.00832)
	Age 65-74	0.108	(0.00103)	0.0124	(0.00196)
	Age 75 or older	0.0912	(0.000931)	0.00516	(0.00125)
	Female	0.515	(0.00165)	0.489	(0.00998)
Socioeconomic characteristics					
	Married	0.482	(0.00165)	0.393	(0.00983)
	Couples	0.603	(0.00162)	0.595	(0.00981)
	Couples with children	0.174	(0.00125)	0.116	(0.00672)
	Single father	0.0141	(0.000406)	0.0193	(0.00264)
	Single mother	0.0749	(0.000879)	0.0393	(0.00339)
	University	0.0744	(0.000890)	0.0638	(0.00460)
	High/Secondary	0.273	(0.00148)	0.257	(0.00879)
	Good economic condition	0.693	(0.00152)	0.449	(0.00995)
	Not employed	0.466	(0.00165)	0.253	(0.00840)
	Housing problems	0.113	(0.00108)	0.351	(0.00964)
Lifestyle habits					
	Smoker	0.189	(0.00130)	0.177	(0.00727)
	Sport	0.495	(0.00166)	0.436	(0.00986)
	On diet	0.146	(0.00117)	0.0721	(0.00511)
	Trust in alternative medicine	0.428	(0.00164)	0.313	(0.00917)
Health needs					
	Good/very good health	0.648	(0.00157)	0.867	(0.00641)
	Bad/very bad health	0.0610	(0.000774)	0.0126	(0.00200)
	Chronic disease	0.414	(0.00162)	0.161	(0.00700)
	Disability	0.0466	(0.000675)	0.00844	(0.00225)
	Accident	0.0272	(0.000532)	0.0239	(0.00293)

In order to save space, the residual share for the reference category of the independent variables is not reported. The reference individual is a man, aged 45–64 years, who is not married and lives alone, with less than secondary education. His economic condition is bad/very bad, and he reports no housing problems. He is employed, resides in a town with less than 10,000 inhabitants, in the center of Italy. He is not affected by any chronic disease or disability, he is not a smoker, he has had no recent accident, he is not on diet, and he practices no sport. His self-reported health condition is fine, and he does not trust alternative medicine.

Table 3: Logit analysis, odds ratios: Foreigners

	(1)	(2)	(3)	(4)	(5)
			GPs		
Foreigner	0.564***	0.882*	0.794***	0.820***	1.002
	[0.0400]	[0.0637]	[0.0583]	[0.0603]	[0.0732]
			Specialist doctors		
Foreigner	0.543***	0.562***	0.543***	0.567***	0.658***
	[0.0376]	[0.0398]	[0.0389]	[0.0406]	[0.0476]
			Hospitals		
Foreigner	0.816	1.135	1.011	0.962	1.189
	[0.108]	[0.150]	[0.135]	[0.130]	[0.162]
			EDs		
Foreigner	1.208**	1.321***	1.153*	1.176*	1.369***
	[0.0990]	[0.110]	[0.0982]	[0.100]	[0.120]
Demographic characteristics		Y	Y	Y	Y
Socioeconomic characteristics			Y	Y	Y
Lifestyle habits				Y	Y
Health needs					Y
Observations	128040	128040	128040	128040	128040

Standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*). All specifications include territorial variables and a constant. Control variables are described in Section 3 and listed in Table 2.

Table 4: Logit analysis, odds ratios: Foreigners, by region of birth

VARIABLES	(1) GPs	(2) Specialist doctors	(3) Hospitals	(4) EDs	(5) Cholesterol test
Whole sample (128,040 observations)					
G2	1.013	0.601***	1.647**	1.159	
	[0.237]	[0.0937]	[0.388]	[0.213]	
EU-25	0.871	1.346	0.824	1.042	
	[0.192]	[0.259]	[0.374]	[0.308]	
Extra-EU-25	1.014	0.620***	1.094	1.455***	
	[0.0789]	[0.0548]	[0.158]	[0.131]	
Adults only (105,844 observations)					
EU-25	0.910	1.493**	0.914	1.197	0.655***
	[0.201]	[0.281]	[0.416]	[0.355]	[0.106]
Extra-EU-25	1.054	0.664***	1.107	1.608***	0.464***
	[0.0815]	[0.0632]	[0.165]	[0.154]	[0.0318]

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***) or 5% level (**). All regression models include a constant and the whole set of individual, household, and geographic characteristics described in Section 3 and listed in Table 2. The regression results for the remaining control variables used in the econometric estimations are available on request.